CONSIDERATIONS TOWARD A REVISED DCPI SERVICE

March 22/23 2004
Peter Woolner
Mitretek Systems
pwoolner@mitretek.org
703-610-1724

POTENTIAL REASONS

- A revised and improved DCPI link could be used for the following:
  - An alternate timing reference
  - An alternate frequency reference
  - An easier way to reduce required DCP EIRP
  - A failure analysis tool
  - A remote control system
  - A last resort override for NOAA
  - Platform interrogation

Mitretek Systems

POTENTIAL DCPI PARAMETERS

- A reasonably capable receiver at low cost
  - Medium data rate: 1200 to 4800 bps
  - Simple modulation: BPSK or QPSK
  - High gain forward error correction code: Convolutional plus RS, or Turbo

Mitretek Systems

DCPI REQUIREMENTS NEEDED

- Functions to be performed

- Data format

- Access to uplink by users

- Security requirements

- Estimate of usage required

MTS™
Mitretek Systems

GOES N DCPI LIMITS

- Worst case EIRP: 45 dBmi
  - GOES I/M is about 44 dBmi
- Can be attenuated in 1 dB steps (max. 13)
- Channel bandwidth: 47 kHz
- Uplink G/T is -15.5 dB/K

MTS™
Mitretek Systems

A DECISION IS NEEDED SOON

- NTIA has recently asked NESDIS to explain the Power Flux Density (PFD) produced by this transponder

- The current PFD does not meet NTIA requirements (-152 dBW/m^2/4kHz)

- It is expected that the DCPI link will have to be changed to comply, or be turned off

MTS™
Mitretek Systems

Innovative Technology in the Public Interest™